

In re Application of: Dan ROTTENBERG et al
Serial No.: 10/597,666
Filed: June 20, 2007
Office Action Mailing Date: March 28, 2008

Examiner: Susan Shan SU
Group Art Unit: 4193
Attorney Docket: 34955

In the Claims:

1. (Currently Amended) A differential pressure regulating device, the device comprising:

a shunt being positioned between two or more lumens-chambers of a heart in a body, to enable fluids to flow between saidlumenschambers, and

an adjustable flow regulating mechanism, being configured to selectively cover an opening of said shunt while keeping said cover always ajar, to regulate and keep continuous the flow of fluid through said shunt in relation to a pressure difference between said body lumenschambers.

2. (Canceled)

3. (Original) The pressure regulating device of claim 1, wherein said flow regulating mechanism is to be continually adjustable in accordance with at least one pressure threshold.

4. (Currently Amended) The pressure regulating device of claim 1, wherein said flow regulating mechanism is to be continually adjustable in accordance with changes in pressure difference between said lumenschambers.

5. (Original) The pressure regulating device of claim 1, comprising a control mechanism; to remotely control said flow regulating mechanism.

6. (Currently Amended) The pressure regulating device of claim 5, wherein said control mechanism ~~includes~~ one or more mechanisms selected from the group consisting of: wires, lines, springs, pins, cables, magnets, hooks, latches, electric mechanisms, pressure transducers, telemetry mechanisms, wireless mechanisms, pneumatic mechanisms, and motors.

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7. (Canceled)

8. (Original) The pressure regulating device of claim 1, wherein said shunt is to be positioned in the septum of the heart, between the left atrium of the heart and the right atrium of the heart.

9. (Original) The pressure regulating device of claim 1, wherein said flow regulating mechanism is to close the opening of said shunt.

10. (Currently Amended) The pressure regulating device of claim 1, wherein said flow regulating mechanism includes one or more mechanisms selected from the group consisting of a disk valve connected to a twisting spring, a pre-shaped flexible wire, a cone connected to a compression spring, a leaflet valve, a flexible disk having an adjustable, substantially central hole, a first balloon having liquid therein and connected through a tube to a second balloon, a first balloon having liquid therein and connected through a tube to a reservoir having a piston moving against a compression spring, and a first balloon having liquid therein and connected through a tube to a reservoir having a piston moving in accordance with a controlled activation system.

11. (Currently Amended) A differential pressure regulating device, the device comprising:

a shunt being positioned between two or more chambers in a heart, to enable fluids to flow between said chambers;

an adjustable flow regulating mechanism, being configured to selectively cover ~~the~~an opening of said shunt while keeping said cover always ajar, to regulate and keep continuous the flow of fluid through said shunt; and

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a control mechanism to be coupled to said adjustable flow regulating mechanism, to remotely activate said adjustable flow regulation—regulating mechanism.

12. (Original) The pressure regulating device of claim 11, wherein said control mechanism includes one or more mechanisms selected from the group consisting of one or more wires, lines, springs, pins, cables, magnets, hooks, latches, electric mechanisms, pressure transducers, wireless mechanisms, telemetry mechanisms, pneumatic mechanisms, and motors.

13. (Original) The pressure regulating device of claim 11, wherein said chambers are atriums of the heart.

14. (Original) The pressure regulating device of claim 11, wherein said shunt is to be positioned in the septum, between the left and right atrium.

15. (Original) The pressure regulating device of claim 11, wherein said flow regulating mechanism is to be continually adjustable in accordance with at least one pressure threshold.

16. (Original) The pressure regulating device of claim 11, wherein said flow regulating mechanism is rigid, said flow regulating mechanism position being directly controlled by said control mechanism, thereby substantially determining the precise size of the opening of said shunt.

17. (Currently Amended) An in-vivo pressure control method, the method comprising:

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implanting a differential pressure regulation device in a body, said pressure regulation device including a shunt placed between two or more lumens-chambers of a heart in t-a said body,

deploying a flow regulating mechanism, and

controlling a setting of said flow regulating mechanism setting according to changes in pressure differences between said lumenschambers, and

maintaining a flow between said chambers through all pressure differences between said chambers.

18. (Original) The pressure control method of claim 17, comprising remotely controlling said flow regulating mechanism positioning.

19. (Currently Amended) The pressure control method of claim 17, comprising reducing a pressure difference between a first lumens-chamber and a second lumenschamber.

20. (Canceled)